

25

<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/648,210	TAKAI ET AL.	
	Examiner	Art Unit	
	Rosalynd Keys	1621	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to remarks filed September 13, 2005.
2. ☒ The allowed claim(s) is/are 13-30 (now claims 1-18).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____</li> <li>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
|---|---|

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Thomas M. Cunningham on November 23, 2005.

The application has been amended as follows: cancel withdrawn claims 11 and 12; in claim 21, line 2, change hydroxaryl to hydroxyaryl; in claim 22 delete multidentate and insert bidentate to tetradentate; and in claim 23, delete claim 24 and insert claim 13.

### *Allowable Subject Matter*

2. Claims 13-30 (now claims 1-18) are allowed.

3. The following is an examiner's statement of reasons for allowance: the instant invention is allowable over Au et al. (US 5,578,740) because of the showing of unexpected higher yields when using the claimed catalyst containing a multidentate phosphite compound (see page 9 of Applicants remarks, filed September 13, 2005, which make reference to Tables 1-3 in the instant specification). Au et al. teach the use of organic phosphites in general without any recognition of the higher yields obtained when using the multidentate phosphites. The obviousness-type double patenting rejection of claims 13-30 is withdrawn, since this would be the only rejection remaining in the application and this application was filed earlier than 10/650,697 (see MPEP 804 (B)(1)).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the

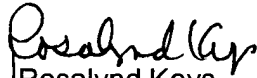
Art Unit: 1621

issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosalynd Keys whose telephone number is 571-272-0639. The examiner can normally be reached on M and F 3:00-8:00 pm and T-TR 5:30-10:30 am.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Rosalynd Keys  
Primary Examiner  
Art Unit 1621

November 23, 2005

# Examiners' Amendment

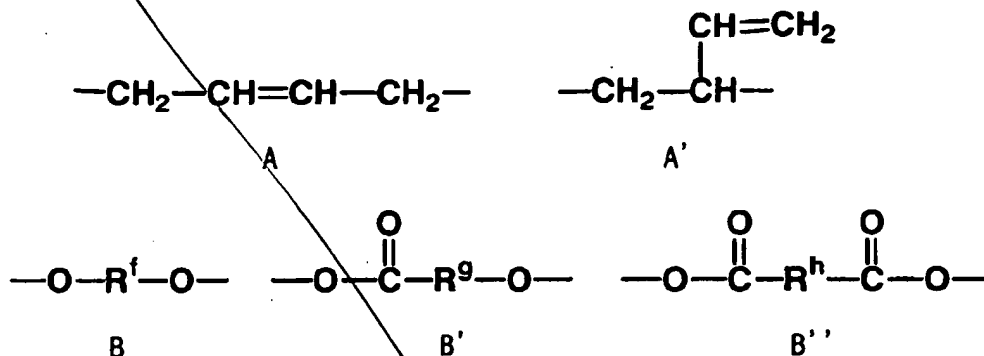
Application No. 10/648,210  
Reply to Office Action of June 13, 2005

## IN THE CLAIMS

Please amend the claims as follows:

Claims 1-10 (Cancelled)

~~Claim 11 (Withdrawn): A condensation copolymer containing a butenediyl unit expressed by the following formulae A and A' and a dioxy unit expressed by the following formulae B, B' and/or B'',~~



~~wherein R<sup>f</sup>, R<sup>g</sup> and R<sup>h</sup> are respectively independently a bivalent organic group which may have a substituent.~~

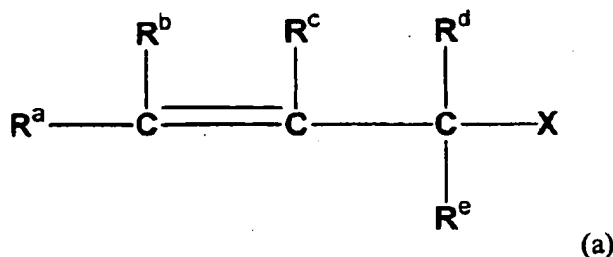
~~Claim 12 (Withdrawn): The condensation copolymer according to Claim 11, wherein the butenediyl unit expressed by the formula A and the butenediyl unit expressed by the formula A' are present in a mol ratio of A: A'=1:10-10:1 in the copolymer.~~

Claim 13 (Previously Presented): A method for producing an allyl compound comprising:

reacting a first allyl compound of formula (a) with an oxygen nucleophilic agent in the presence of a catalyst containing a multidentate phosphite compound and at least one transition metal compound containing a transition metal selected from the group consisting of transition metals belonging to Group 8 to Group 10 of the Periodic Table, under conditions suitable for producing a second allyl compound,

wherein the second allyl compound has a compositional structure different than that of the first allyl compound, and

wherein formula (a) is:



wherein  $\text{R}^a$  to  $\text{R}^e$  are independently a hydrogen atom, a halogen atom, a hydroxyl group, an amino group, a formyl group, an alkyl group, an aryl group (including a heterocyclic compound forming an aromatic  $6\pi$  electron cloud on the upper and lower sides of the ring, hereinafter the same), an alkoxy group, an aryloxy group, an alkylthio group, an arylthio group, an amide group, an acyl group or an acyloxy group;

among these groups, the amino group, the alkyl group, the aryl group, the alkoxy group, the aryloxy group, the alkylthio group, the arylthio group, the acyl group or the acyloxy group may have a substituent; and

when any of  $\text{R}^a$  to  $\text{R}^e$  has a carbon chain, the carbon chain may have at least one carbon-carbon double bond or triple bond;

X is a halogen atom, a hydroxyl group, a nitro group, an amino group, a sulfonyl group, a sulfonate group, an acyloxy group, a carbonate group, a carbamate group, a phosphate group, an alkoxy group or an aryloxy group; among these groups, the amino group, the sulfonyl group, the sulfonate group, the acyloxy group, the carbonate group, the carbamate group, the phosphate group, the alkoxy group and the aryloxy group may have a substituent; when X has a carbon chain, the carbon chain may have at least one carbon-carbon double bond or triple bond; and

at least two optional groups among  $R^a$  to  $R^e$  and X may bond to each other to form at least one cyclic structure;

wherein the oxygen nucleophilic agent is not the same as the X of the first allyl compound,  $X^-$ , or the proton adduct of X.

Claim 14 (Previously Presented): The method of Claim 13, wherein the first allyl compound has a molecular weight of 1,500 Da or less or contains at most 100 carbon atoms.

Claim 15 (Previously Presented): The method of Claim 13, wherein  $R^a$  to  $R^e$  are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, aryl, and substituted aryl.

Claim 16 (Previously Presented): The method of Claim 13, wherein X is a halogen atom.

Claim 17 (Previously Presented): The method of Claim 13, wherein X is a hydroxy group, an alkoxyl group or an aryloxy group.

Claim 18 (Previously Presented): The method of Claim 13, wherein X is a nitro group or an amino group.

Claim 19 (Previously Presented): The method of Claim 13, wherein X is a sulfonyl group or a sulfonate group.

Claim 20 (Previously Presented): The method of Claim 13, wherein X is an acyloxy group, a carbonate group, a carbamate group, or a phosphate group.

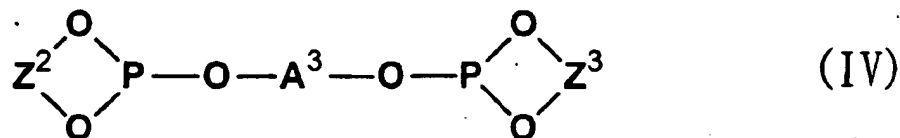
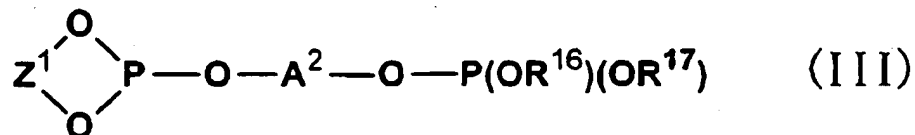
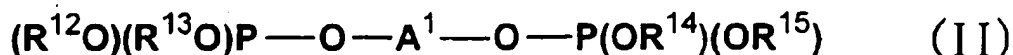
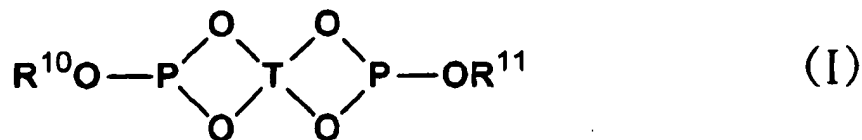
Claim 21 (Previously Presented): The method of Claim 13, wherein the oxygen nucleophilic agent is an alcohol, a deprotonated alcohol, a <sup>hydroxyaryl</sup> ~~hydroxaryl~~, a deprotonated hydroxyaryl, an aromatic carboxylic acid, or a deprotonated aromatic carboxylic acid.

Claim 22 (Previously Presented): The method of Claim 13, wherein the reaction occurs in the presence of a catalyst which contains a <sup>bidentate to tetradentate</sup> ~~multidentate~~ phosphite compound.  
Λ

Claim 23 (Previously Presented): The method of Claim <sup>13</sup> ~~24~~, wherein the multidentate phosphite compound is a bidentate phosphite compound.

Claim 24 (Previously Presented): The method of Claim 13, wherein the transition metal compound is at least one compound selected from the group consisting of a ruthenium compound, a rhodium compound, an iridium compound, a nickel compound, a palladium compound and a platinum compound.

Claim 25 (Previously Presented): The method of Claim 13, wherein the multidentate phosphite compound is at least one bidentate phosphite compound selected from the group consisting of compounds expressed by the following structural formulae (I) to (IV),



wherein  $\text{R}^{10}$  to  $\text{R}^{17}$  are respectively independently an alkyl or aryl group which may have a substituent,  $\text{Z}^1$  to  $\text{Z}^3$  and  $\text{A}^1$  to  $\text{A}^3$  are respectively independently a bivalent organic group, and T is a tetravalent organic group.

Claim 26 (Previously Presented): The method of Claim 25, wherein in the above formulae (II) to (IV),  $\text{R}^{12}$  to  $\text{R}^{17}$  are respectively independently an aryl group which may have a substituent, and  $\text{Z}^1$  to  $\text{Z}^3$  are respectively independently a diarylene group which may have a substituent.

Claim 27 (Previously Presented): The method of Claim 25, wherein the transition metal compound is a palladium compound.



Claim 28 (Previously Presented): The method of Claim 13, wherein the oxygen nucleophilic agent is a compound different from a substituent X and its proton adduct X-H eliminated from the allyl starting material compound by reaction, and is a compound containing a nucleophilic oxygen atom expressed by AO-H or its deprotonated form of AO-, in which A is a hydrogen atom or an organic group having a carbon atom, a nitrogen atom, a phosphorus atom or a sulfur atom bonded to the oxygen atom.

Claim 29 (Previously Presented): The method of Claim 13, wherein a phosphonium compound is present during the reaction.

Claim 30 (Previously Presented): The method of Claim 13, wherein an ammonium compound is present during the reaction.